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High Resolution Bulk Sensitive Photoemission Study of the Metal-Insulator Transition in $(V_{1-x}Cr_x)_2O_3$: Comparison to LDA+DMFT Theory

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We present the first well resolved high photon energy bulk sensitive photoemission spectra for all phases of $(V_{1-x}Cr_x)_2O_3$ and compare them in detail to recent LDA+DMFT theory [1]. We find for the metal phase impressive general agreement that is sufficient to warrant quantitative optimization of the theory parameters, but for the paramagnetic insulating phase considerable differences which may not be fully explained by the high temperature of the calculations.

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[1] K. Held et al., Phys. Rev. Lett. 86, 5345 (2001).